

## 9.4: Discussion

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### Discussion

Write a minimum one-page (12 font, single spaced) discussion on the experiment conducted this week. Address **at least one question in each category** as fully as possible integrating the collected data, providing explanations for the observed trends, and evaluating whether your original assumptions about the experiment were validated by the results. **The assignment will be graded on completeness, clarity of the explanations and the meaningful integration of the collected and calculated data.** Correct grammar and appropriate format for the chemical formulae and chemical reactions is expected. **You may use the outline included at the end of this document on how to build your essay to address each category.**

1. (Existing knowledge, research, and views) Define polymers and identify what kind of polymers are found in diapers.
2. (Analysis) Describe what happened when you added water to your polymer and use your observation to explain how a diaper works.
3. (Existing knowledge, research, and views) Look up the water uptake of this superabsorbent polymer in the literature. Describe how your result compares to that number.
4. (Existing knowledge, research, and views) Name at least 3 other applications for these super absorbent polymers and describe how they are used. Describe what makes these applications interesting to you.
5. (Analysis) Describe what happened when you added salt to your polymer. Identify at least one other substance that you expect to produce the same effect and provide an argument for the similar results.
6. (Existing knowledge, research, and views) Define pH and describe what it is used for.
7. (Existing knowledge, research, and views) Describe the pH indicator used in this experiment and how it was prepared. If the indicator wasn't the whole red cabbage, identify the specific compound.
8. (Analysis) Predict the color of the indicator and the pH of the solution if a strong acid like HCl is used in place of the vinegar. Provide an explanation for your choice.
9. (Analysis) Predict the color of the indicator and the pH of the solution if a strong base like NaOH is used instead of sodium bicarbonate. Provide an explanation for your choice.
10. (Analysis) Predict the color of the indicator and the pH of the solution if a higher concentration of the acetic acid was used instead of the 5% vinegar. Provide an explanation for your choice.
11. (Analysis) Identify the method that is most sensitive among the 3 different methods you tested in this experiment and provide a supported argument for your choice.
12. (Experimental design) Describe a practical application that requires you to determine the pH and provide a convincing argument why the red-cabbage indicator may or may not work for that purpose.

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